UNITED STATES PATENT AND TRADEMARK OFFICE

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09/973,914	10/11/2001	Makoto Oyanagi	KYO-101	7458

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MATTINGLY, STANGER & MALUR, P.C.
ATTORNEYS AT LAW
1800 DIAGONAL ROAD, SUITE 370
ALEXANDRIA, VA 22314

EXAMINER
HUNTSINGER, PETER K

ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/973,914	OYANAGI, MAKOTO
	Examiner	Art Unit	
	Peter K. Huntsinger	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2006*.

2a)☒ This action is **FINAL**.   · 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,6-17 and 19-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,6-17 and 19-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Claim Objections

1.   Claim 17 is objected to because of the following informalities: The claim

language should be changed to "in which data is extracted from the scan data stored in

the second data storage a every predetermined number of lines. Appropriate correction

is required.

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claims 1, 14, and 19-21 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. The term "high definition printing operation" in

claims 1, 14, and 19-21 is a relative term which renders the claim indefinite. The term

"high definition printing operation" is not defined by the claims, the specification does

not provide a standard for ascertaining the requisite degree, and one of ordinary skill in

the art would not be reasonably apprised of the scope of the invention.

3.   Claims 6 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. Claim 6 provides the limitation of extracting scan

data from the even bit data storage and the odd bit data storage **every other line** and

executing printing. Claim 9 provides the limitation of alternately repeating performing

one print pass with one of the even or odd bit data storage, feeding, and printing using

the other of the even and odd bit data storage. The independent claim 1 provides the

limitation of a high definition printing mode which performs printing by a **plurality of**

print passes for one line of printed image (utilizing the even and odd bit data storage).

The invention cannot both perform printing by a plurality of print passes for one line and

printing the even bits or odd bits every other line.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1, 2, 4, 6-8, 10, 11, 13-15, 17, and 19-23 are rejected under 35 U.S.C.

103(a) as being unpatentable over Iwai Patent 6,683,703, and further in view of Angus

et al. Patent 4,758,103.

Referring to claims 1, 19, and 21, Iwai discloses a multi-function printer which is

a combination of a scanner and a printer (Fig. 1, col. 4, lines 58-62), comprising: a first

data storage in which scan data scanned in by the scanner is stored, wherein one line

of a scan operation of the scanner corresponds to one line of the scan data in the first

data storage (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44). Iwai does not

disclose expressly classifying data in compliance with print passes. Angus et al.

disclose a classificational executer which reads out data from a first data storage (col. 4-5, lines 67-68, 1-11), wherein the printer performs printing by a plurality of print passes for one line of printed image and the classificational executer classifies the scan data in compliance with the number of the print passes, wherein the number of the print passes is defined by a print mode of a high definition printing operation (col. 5, lines 12-22); a second data storage in which the classified data is stored in compliance with the print passes, wherein a capacity of the second data storage is less than one page of the data and the classified scan data is stored in the second data storage by a unit of one band which is equal to a height of a print head of the printer (col. 5, lines 54-64) (col. 6, lines 6-14); and a print executer which reads out the classified data from the data storage by each of the print passes, generates print image data having a data format suitable for a print processing on the basis of the read-out data without classifying the data, and drives the print head of the printer on the basis of the print image data in each of the print passes (col. 7, lines 25-64). Iwai and Angus et al. are combinable because they are from the same field of printing systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to classify scanned data corresponding to print passes. The motivation for doing so would have been to reduce printing noise. Therefore, it would have been obvious to combine Angus et al. with Iwai to obtain the invention as specified in claims 1, 19, and 21.

Referring to claim 2, Angus et al. disclose wherein a resolution of the printer head is coarser than a resolution to be printed on a print medium by the printer (col. 6, lines 15-21).

Referring to claim 4, Angus et al. disclose wherein there are two print passes for one line of the data, and the classificational executer classifies the data into even bits thereof and odd bits thereof and stores them in the second data storage (col. 7, lines 25-64).

Referring to claim 6, Angus et al. disclose wherein the classificational executer classifies the scan data into even bits and odd bits in every line of the data, and stores data of the even bits of the data in an even bit data storage in the first data storage every line of the data and stores data of the odd bits of the data in an odd bit data storage in the first data storage every line of the data (col. 6, lines 6-14), and wherein the print executer executes an interlaced processing that the data is extracted from the even bit data storage and the odd bit data storage every other line respectively, and executes the printing (col. 7, lines 25-64).

Referring to claim 7, Iwai discloses wherein a classificational executer has a latch buffer of a predetermined data length, and latches the scan data of the predetermined data length into the latch buffer and obtains the scan data to be stored in the even bit data from even bits of the latch buffer and the scan data to be stored in the odd bit data from odd bits of the latch buffer (col. 8, lines 57-64).

Referring to claim 8, Angus et al. disclose wherein the classificational executer comprises: an even look up table in which even bit data obtainable by extracting even bits from the scan data of the predetermined data length are stored for all patterns of the scan data of the predetermined data length; and an odd look up table in which odd bit data obtainable by extracting odd bits from the scan data of the predetermined data

length are stored for all patterns of the scan data of the predetermined data length,
wherein the classificational executer reads out the scan data from the second data
storage by the predetermined data length for every time and compares the read-out
scan data with the even look up table so that the scan data to be stored in the even bit
data storage is obtained, and compares the read-out scan data with the odd look up
table so that the scan data to be stored in the odd bit data storage is obtained (Fig. 8,
col. 6, lines 30-42).

Referring to claims 10 and 15, Angus et al. disclose wherein the classificational
executer is constituted of hardware (logic unit 33 of Fig. 4, col. 4, lines 48-55).

Referring to claim 11, Angus et al. disclose wherein the interlaced processing
executed in the print executer is performed as software processing (col. 7, lines 25-64).
It is inherent that the hardware of Angus et al. is controlled by software.

Referring to claim 13, Angus et al. disclose wherein the first data storage (col. 4-
5, lines 67-68, 1-11) and the second storage (col. 5, lines 54-64) are provided in
different memories.

Referring to claims 14 and 20, Iwai disclose a multi-function printer which is a
combination of a scanner and a printer (Fig. 1, col. 4, lines 58-62), comprising: a first
data storage in which scan data scanned in by the scanner is stored, wherein one line
of a scan operation of the scanner corresponds to one line of the scan data in the first
data storage (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44). Iwai does not
disclose expressly classifying data in compliance with print passes. Angus et al.
disclose a classificational storing section which reads out the data from a first data

storage (col. 4-5, lines 67-68, 1-11), and classifies the data according to an appropriate

data format for each time of the X times of the movement of the print head in the main

scan pass direction, wherein the number of times of movement of the print head is

defined by a print mode of a high definition printing operation, and which stores them in

a second data storage, wherein a capacity of the second data storage is less than one

page of the data and the classified data is stored in the second data storage by a unit of

one band which is equal to a height of the print head (col. 5, lines 54-64) (col. 6, lines 6-

14); a print image data generator which sequentially reads out the classified data from

the second data storage and generates a print image data on the basis of the read-out

data for every reading out without classifying the scan data; and a print executer which

executes printing with the print head moved in the main scan pass direction on the basis

of the print image data generated by the print image data generator (col. 7, lines 25-64).

Iwai and Angus et al. are combinable because they are from the same field of printing

systems. At the time of the invention, it would have been obvious to a person of

ordinary skill in the art to classify scanned data corresponding to print passes. The

motivation for doing so would have been to reduce printing noise. Therefore, it would

have been obvious to combine Angus et al. with Iwai to obtain the invention as specified

in claims 14 and 20.

Referring to claim 17, Angus et al. disclose wherein the print image data

generator also executes an interlaced processing in which data is extracted from the

data stored in the second data storage in every predetermined lines (col. 5, lines 54-64)

(col. 6, lines 6-14).

Referring to claim 22, Angus et al. disclose wherein a classification number of the first data is related to a number of the print passes (col. 6, lines 6-14) (col. 7, lines 25-64).

Referring to claim 23, Angus et al. disclose wherein the first data includes, a plurality of bits, and wherein the classificational executer classifies the bits included in the first data in compliance with the position of each bit in the first data (col. 6, lines 6-14) (col. 7, lines 25-64).

6.   Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwai Patent 6,683,703 and Angus et al. Patent 4,758,103 as applied to claims 11 and 15, and further in view of well known prior art.

Referring to claims 12 and 16, Angus et al. disclose software processing but do not disclose expressly a central processing unit executing the software. Official Notice is taken that it is well known and obvious for a single central processing unit to execute software in a printer (see MPEP 2144.03). At the time of the invention it would have been obvious to utilize a single central processing unit to execute the software in the printer. The motivation for doing so would have been to reduce the cost of the printing system.

7.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwai Patent 6,683,703 and Angus et al. Patent 4,758,103, as applied to claim 6 above, and further in view of Merna et al. U.S. Patent 5,239,312.

Referring to claim 9, Angus et al. disclose a processing for reading out the data from one of the even bit data storage and the odd bit data storage, performing one print pass and reading out the data from the other of the even bit data storage and the odd bit data storage (col. 7, lines 25-64). Angus et al. do not disclose expressly wherein the relationship between the number of lines read and the number of lines fed is relatively prime. Merna et al. disclose having the remainder between the division of the number of lines read and the number of lines fed is non-zero (Fig. 4, col. 6, lines 7-14). Iwai, Angus et al., and Merna et al. are combinable because they are from the same field of printing systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to move the print head a number of lines which is different than the number of lines printed. The motivation for doing so would have been to improve image quality by avoiding the effects of deterioration on the individual print jets. Therefore, it would have been obvious to combine Merna et al. with Iwai and Angus et al. to obtain the invention as specified in claim 9.

Conclusion

8.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
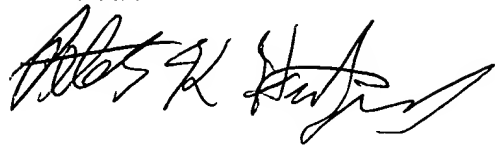
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter K. Huntsinger whose telephone number is (571)272-7435. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (571)272-7471. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PKH

K.A.Williams
SUPERVISORY PATENT EXAMINER
TC 2600